

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended) An apparatus for reducing the aerodynamic base drag of a bluff body having a leading end, a trailing end, a top surface, a bottom surface, opposing left and right side surfaces, and a base surface at the trailing end substantially normal to a longitudinal centerline of the bluff body, said base surface joined to the left side surface at a left trailing edge, to the right side surface at a right trailing edge, to the bottom surface at a bottom trailing edge, and to the top surface at a top trailing edge, said apparatus comprising:

left and right vertical boattail plates orthogonally attached to the base surface of the bluff body and inwardly offset from the left and right trailing edges, respectively, and from the top and bottom trailing edges, to produce left and right vertical channels which generate, in a flowstream substantially parallel to the longitudinal centerline, respective left and right vertically-aligned vortical structures therein, said left and right vertical boattail plates each having a plate width defined by a rear edge spaced from the base surface, ~~and a peak plate width at a location between top and bottom ends thereof~~ corresponding to a peak vortex of the respective vertically-aligned vortical structures with said plate width being shorter at top and bottom ends thereof

than at the center to more quickly turn the flowstream around into the base surface at the top and bottom ends than at the center of the vertical boattail plate.

2. (currently amended) The apparatus of claim 1,

further comprising an upper horizontal boattail plate orthogonally attached to the base surface of the bluff body and inwardly offset from the top trailing edge to produce an upper horizontal channel which generates, in the flowstream, an upper horizontally-aligned vortical structure therein, said upper horizontal boattail plate having a plate width defined by a rear edge spaced from the base surface, ~~and a peak plate width at a location between left and right ends thereof, corresponding to a peak vortex of the upper horizontally-aligned vortical structure,~~ with said plate width being shorter at left and right ends thereof than at the center, and with the left end of the horizontal boattail plate adjacent the top end of the left vertical boattail plate without extending beyond each other, and the right end of the horizontal boattail plate adjacent the top end of the right vertical boattail plate without extending beyond each other, so that reduced corners are formed which turn the flowstream more quickly around into the base surface at the reduced corners than at the respective centers of the vertical and horizontal boattail plates.

3. (original) The apparatus of claim 1 or 2,
wherein the rear edges of the boattail plates are convexedly curvilinear.
4. (original) The apparatus of claim 1 or 2,
wherein the rear edges of the boattail plates are angled to produce
wedge-shaped boattail plates.
5. (currently amended) An apparatus for reducing the aerodynamic base drag of
a bluff body having a leading end, a trailing end, a top surface, a bottom
surface, opposing left and right side surfaces, and a base surface at the trailing
end substantially normal to a longitudinal centerline of the bluff body, said
base surface joined to the left side surface at a left trailing edge, to the right
side surface at a right trailing edge, to the bottom surface at a bottom trailing
edge, and to the top surface at a top trailing edge, said apparatus comprising:
left and right vertical boattail plates orthogonally attached to the base
surface of the bluff body and inwardly offset from the left and right trailing
edges, respectively, and from the top and bottom trailing edges, to produce
left and right vertical channels which generate, in a flowstream substantially
parallel to the longitudinal centerline, respective left and right vertically-
aligned vortical structures therein, said left and right vertical boattail plates
having a non-rectangular geometry ~~with a peak plate width at a location~~
~~between top and bottom ends of said vertical plates~~ with a shorter plate width

at top and bottom ends thereof than at the center to more quickly turn the flowstream around into the base surface at the top and bottom ends than at the center of the vertical boattail plate.

6. (currently amended) The vehicle attachment of claim 5,

further comprising an upper horizontal boattail plate orthogonally attached to the base surface of the bluff body and inwardly offset from the top trailing edge to produce an upper horizontal channel which generates, in the flowstream, an upper horizontally-aligned vortical structure therein, said upper horizontal boattail plate having a non-rectangular geometry ~~with a peak plate width at a location between left and right ends of said upper horizontal boattail plate,~~ with a shorter plate width at left and right ends thereof than at the center, and with the left end of the horizontal boattail plate adjacent the top end of the left vertical boattail plate without extending beyond each other, and the right end of the horizontal boattail plate adjacent the top end of the right vertical boattail plate without extending beyond each other, so that reduced corners are formed which turn the flowstream more quickly around into the base surface at the reduced corners than at the respective centers of the vertical and horizontal boattail plates.

7. (original) The vehicle attachment of claim 5 or 6,

wherein said boattail plates have a convexedly curvilinear geometry.

8. (original) The vehicle attachment of claim 5 or 6,

wherein said boattail plates have a triangular geometry.

9. (currently amended) A vehicle attachment for reducing the aerodynamic base drag of a bluff body having a leading end, a trailing end, a top surface, a bottom surface, opposing left and right side surfaces, and a base surface at the trailing end substantially normal to a longitudinal centerline of the bluff body, said base surface joined to the left side surface at a left trailing edge, to the right side surface at a right trailing edge, to the bottom surface at a bottom trailing edge, and to the top surface at a top trailing edge, said apparatus comprising:

left and right vertical boattail plates orthogonally connectable to the base surface of the bluff body so as to be inwardly offset from the left and right trailing edges, respectively, and from the top and bottom trailing edges, and produce left and right vertical channels which generate, in a flowstream substantially parallel to the longitudinal centerline, respective left and right vertically-aligned vortical structures therein, said left and right vertical boattail plates each having a plate width defined by a rear edge spaced from the base surface, ~~and a peak plate width at a location between top and bottom ends thereof, corresponding to a peak vortex of the respective vertically-~~ aligned vortical structures with said plate width being shorter at top and

bottom ends thereof than at the center to more quickly turn the flowstream around into the base surface at the top and bottom ends than at the center of the vertical boattail plate.

10. (currently amended) The vehicle attachment of claim 9,

further comprising an upper horizontal boattail plate orthogonally attached to the base surface of the bluff body and inwardly offset from the top trailing edge to produce an upper horizontal channel which generates, in the flowstream, an upper horizontally-aligned vortical structure therein, said upper horizontal boattail plate having a plate width defined by a rear edge spaced from the base surface, ~~and a peak plate width at a location between left and right ends thereof, corresponding to a peak vortex of the upper horizontally-aligned vortical structure,~~ with said plate width being shorter at left and right ends thereof than at the center, and with the left end of the horizontal boattail plate adjacent the top end of the left vertical boattail plate without extending beyond each other, and the right end of the horizontal boattail plate adjacent the top end of the right vertical boattail plate without extending beyond each other, so that reduced corners are formed which turn the flowstream more quickly around into the base surface at the reduced corners than at the respective centers of the vertical and horizontal boattail plates.

11. (original) The vehicle attachment of claim 9 or 10,

wherein the rear edges of the boattail plates are convexedly curvilinear.

12. (original) The vehicle attachment of claim 9 or 10,

wherein the rear edges of the boattail plates are angular to produce
wedge-shaped boattail plates.

13. (canceled)